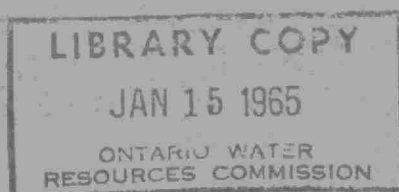




THE
ONTARIO WATER RESOURCES
COMMISSION
WATER POLLUTION SURVEY
OF THE
VILLAGE OF LION'S HEAD
COUNTY OF BRUCE

1964



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R E P O R T

on

WATER POLLUTION SURVEY

of the

VILLAGE OF LION'S HEAD

COUNTY OF BRUCE

Date of Sampling: - August 24, 1964

Division of Sanitary Engineering

R E P O R T

ONTARIO WATER RESOURCES COMMISSION

A pollution survey of the Village of Lion's Head was carried out on August 24, 1964. Such surveys are performed routinely and upon request throughout the province as a basis for evaluating existing water resources and sources of pollution.

I GENERAL

The Village of Lion's Head is located at the mid-point of the Bruce Peninsula between Wiarton and Tobermory. Isthmus Bay, a small inlet on the west shore of Georgian Bay, serves as a basin around which the village and several cottage developments are situated.

The village is largely a summer tourist centre with a year round population of nearly 400. The seasonal population in the village and immediate vicinity is estimated at 2000.

The geographical location of the village affords natural drainage into Isthmus Bay. Sandy soil conditions are found in the south portion of the municipality with beach stone and sand in the remainder.

There are no industries in the village and the local economy is based solely on tourism and related retail services. Total assessment is \$402,000.

WATER USES

1. Municipal Water Systems

An OWRC survey was carried out in 1959 to determine municipal water supply requirements and the approximate costs of providing same. The estimated cost of \$95,000 was felt to be excessive and no action was taken on the survey proposals.

2. Private Water Systems

With the rejection by the municipality of a water supply system, a number of interested residents established a system on a co-operative basis in 1960. The Lion's Head Pure Water Association now supplies some 50% of the population through 70 services at a cost of \$500 initially and with a \$10 annual service fee.

Water is drawn from Isthmus Bay, chlorinated and distributed to the system without further treatment.

The water has generally proved bacteriologically safe based on results of samples collected by the Bruce County Health Unit.

As far as can be determined, those not serviced by the water system, rely on individual drilled wells. The quantity and quality from such supplies is reported to be generally unsatisfactory.

3. Recreational Uses

The shore of Isthmus Bay provides the village with a natural sand beach used extensively for swimming. The beach area is part of a local conservation park and is well maintained.

Fishing and boating are popular in the outer portions of the bay.

III WATER POLLUTION

1. Sanitary Waste Disposal

(a) Existing Conditions

There are no sanitary sewers in the village. Domestic wastes are generally disposed of through septic tank disposal systems with the occasional privy still in use.

Three storm sewers are known to exist although details as to their exact location are not known. Two of these sewers are believed to be municipal drains. Both discharge into the bay in the vicinity of the beach - one at Scott Street and the second at Webster Street. The third sewer is generally considered to be a private drain from an abandoned hotel property.

The Scott Street drain discharges just north of the beach at a point 80-100 feet from the water's edge. Effluent from this drain had the appearance of domestic sewage and samples of same were taken for laboratory analyses. The estimated flow was 30 gph.

The two remaining drains terminate in rocky fill at the south end of the park. The Webster Street drain has an intermittent flow and was not discharging at the time of the survey. The third drain did not appear to have been used for some time.

Since all three drains discharge in the vicinity of the

bathing beach, the county health unit conducts regular sampling programmes in the bay and from the various drains. The results of analyses of samples in the past two years indicate the presence of domestic wastes in the discharges from the drains. These wastes, in turn, appear to have caused varying degrees of pollution in the bay. Unfortunately, the most serious pollution occurs in the swimming area where the bay waters are subject to very little movement. Efforts by the health unit staff to locate the source of polluting wastes have been unsuccessful, due largely to the lack of information on the existing drainage system.

(b) Proposed Sewage Works

The village council has no plans for municipal sewage works.

It should be noted that the nature and volume of polluting wastes are such that the sources are likely few in number. These could be located by the use of fluorescein tracing dyes in all premises which are suspected of lacking proper means of waste disposal.

2. Refuse Disposal

The village provides its residents with weekly garbage pick-up and refuse is disposed of in an abandoned gravel pit located in Eastnor Township to the south-east of the village. Pollution of ground or surface waters from the dump site does not appear to be significant.

3. Discussion of Sample Analyses

A series of six samples was taken for laboratory analyses

and the results of these are appended. Sample locations are noted on the accompanying map.

Interpretation

M.F. Coliform Count

The Membrane Filter Coliform Count indicates the number of coliform organisms present per 100 ml of water (sample). Coliform organisms are generally found in the intestinal tract of humans and other warm-blooded animals and are used as an indication of domestic pollution. The OWRC objective for stream and lake waters is a count of not greater than 2,400 coliforms per 100 ml.

Biochemical Oxygen Demand (BOD)

The Biochemical Oxygen Demand is an indication of the amount of oxygen required to stabilize the decomposable organic matter present in the sample. The OWRC objectives for natural waters and waste discharges are four and 15 ppm, respectively.

Discussion

On the basis of the above objectives, it can be concluded that effluent from the Scott Street drain contains polluting wastes and that the inner portions of Isthmus Bay are polluted as a result. These findings are identical to those of the county health unit based on similar sampling procedures in 1963 and 1964.

IV SUMMARY AND CONCLUSIONS

A water pollution survey was carried out in the Village of

Lion's Head on August 24, 1964.

The village has neither water nor sanitary sewers available on a municipal basis. A chlorinated water supply, operated by a citizen's association, services 50% of the population. Sanitary waste disposal is largely by means of individual septic tanks, although some domestic wastes are entering municipal storm drains, resulting in pollution of Isthmus Bay.

V RECOMMENDATION


It is recommended that the village council make every effort to have illegal connections to the municipal storm drains severed.

All of which is respectfully submitted

District Engineer


A. B. Redekopp

Approved by

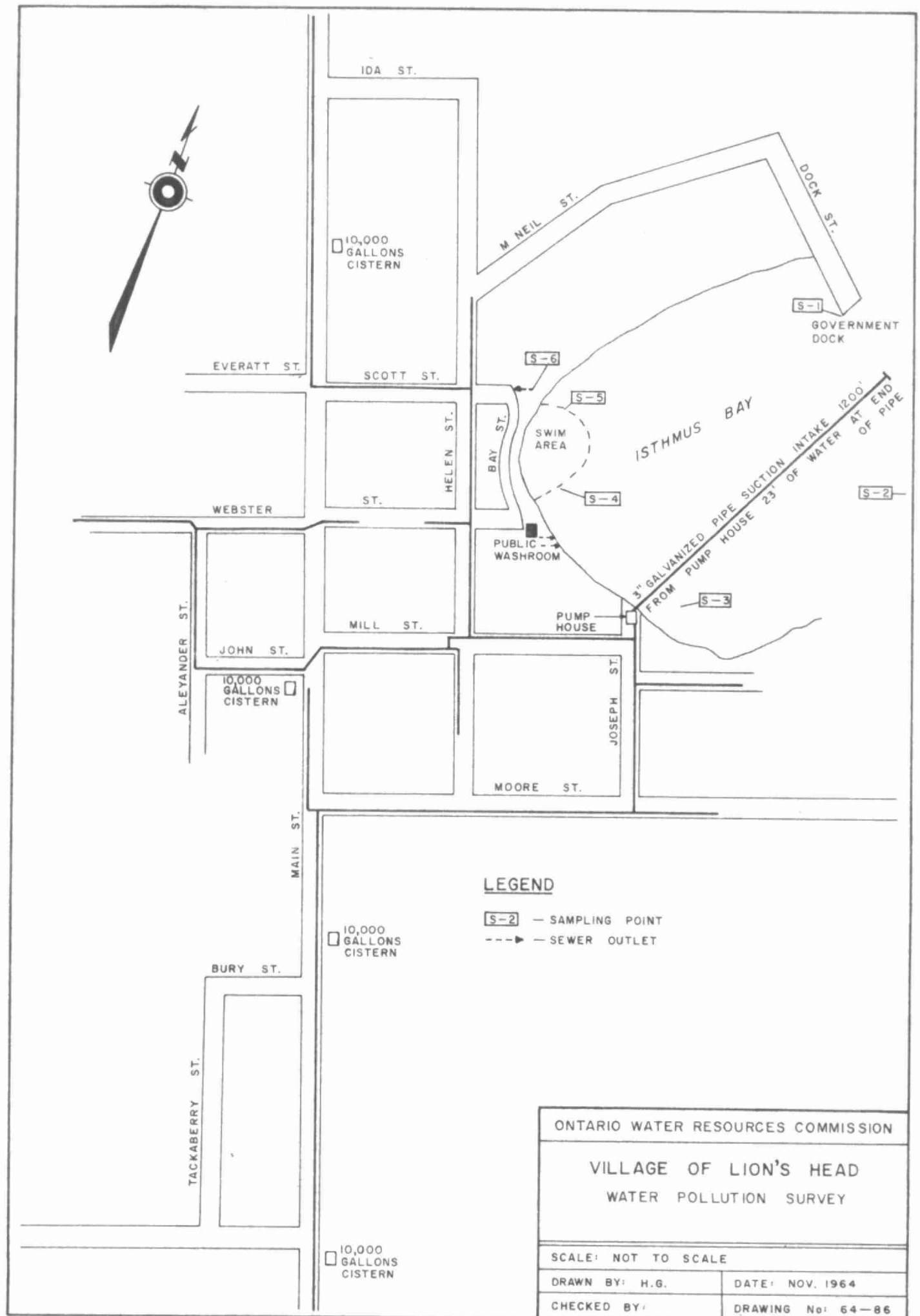

K. H. Sharpe, Director

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VILLAGE OF LION'S HEAD

Isthmus Bay and Municipal Drain

| <u>Lab. No.</u> | <u>Location</u> | <u>5-Day BOD</u> | <u>Total</u> | <u>Solids Susp.</u> | <u>Diss.</u> | <u>M.F. Coliforms per 100 ml</u> | <u>Estimated Flow</u> |
|---------------------|--|----------------------|--------------|-------------------------|--------------|--------------------------------------|---------------------------|
| 1 | Isthmus Bay - off Government Dock | 0.6 | 160 | 1 | 159 | 0 | - |
| 2 | Isthmus Bay - opposite Government Dock | 0.6 | 122 | 1 | 121 | 0 | - |
| 3 | Isthmus Bay - south corner-near water works | 0.6 | 152 | 1 | 151 | 3,800 | - |
| 4 | Isthmus Bay - south portion of swim area | 0.6 | 138 | 1 | 137 | 4 | - |
| 5 | Isthmus Bay - north portion of swim area | 0.9 | 158 | 1 | 157 | 8 | - |
| 6 | Scott St. drain effluent | 2.3 | 766 | 46 | 720 | 12,000 | 30 GPH |



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